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ORIGINAL ARTICLES.

A CLINICAL ANALYSIS OF SIXTY-FOUR CASES OF POISONING BY LEAD CHROMATE (CHROME YELLOW), USED AS A CAKE-DYE.¹

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IN presenting to the profession through THE MEDICAL News of June 18, 1887, some hastily prepared notes on several cases of lead-poisoning, whose source I had traced to the use of lead chromate as a food adulteration, I was unaware of the rather extensive use of this substance as a food color and of the wide prevalence of lead-poisoning through this means. The present paper is an analysis of the symptoms of sixty-four of these cases, fifty-seven of which I have personally carefully examined. All of them had consumed, for a considerable period, large quantities of the cakes containing the lead chromate and all showed some unmistakable signs of plumbism, which, by diligent inquiry, I was unable to trace to other sources. I have excluded some cases which I have no doubt are due to lead, presenting none of what are ordinarily regarded as the essential symptoms of plumbism, such as the blue line on the gums, colic with constipation, arthralgia, etc., time not permitting examining the urine for the metal. I prefer to deal here almost solely with the class presenting the ordinary symptoms more or less pronounced, concerning which, there can be no question as to diagnosis. I have found that there is a much larger class with symptoms more or less obscure and not especially suggestive of plumbism, but whose condition is, nevertheless, due to the action of lead and deserves most careful consideration and study. They make a far more instructive group than these here considered, since, because of the obscurity of their symptoms, serious mistakes in diagnosis are constantly being made.

I have met a number of these cases recently, which, though I believe there can be no doubt as to the nature and source of the symptoms, I prefer not to discuss as a group until I can, at the same time, present the results of the urine analysis which Dr. Leffmann is now carrying out. In the present group are a few, for example, one of the cases of encephalopathy (Mrs. V. G.), that approach those that present so-called "classical" symptoms of lead-poisoning, there being some few features in common; yet of them, those in the latter are obscured by more prominent symptoms not generally con-

sidered suggestive of plumbism. In a subsequent paper, the material for which is being collected, some cases of this sort will be discussed and the results of the tests for lead in the urine given.

The sixty-four cases here considered include nearly all that first came to my notice due to the introduction of lead chromate into the food furnished by the two bakers, Palmer and Schmid, who were recently held by the coroner to await the result of a judicial inquiry. They do not by any means include the whole number affected. From subsequent observation I am convinced they are only a modicum and that the extent of the evil is not yet fully known.

Of these 64 cases 32.81 per cent. (21) are males and 67.18 per cent. (43) are females. This large excess of females affected may be explained by their greater fondness for the food containing the lead salt. Both sexes appeared to be equally susceptible to the metal and each suffered with equal severity. Of five women who exhibited symptoms of plumbism during gestation, none aborted, but all at full term gave birth to living children; one had, however, two convulsions at the termination of the seventh month of pregnancy, believed to be of saturnine origin, though a small amount of albumen was present in the urine. Four of these five infants had convulsions within two months after birth, in which two died.

78.21 per cent. (50) of the cases exhibited the saturnine cachexia, displaying an anaemic appearance with an earthy-yellow hue to the skin; a sallow tint without yellowness was present in the remaining 21.87 per cent. (14). In 10.93 per cent. (7) the skin became intensely yellow at one time or another, notably when colic was present. The dull, anaemic, somewhat listless look, associated with a peculiar fulness of the cheeks, of which Oliver speaks, and which is considered by him as quite suggestive of plumbism, I noticed in but three cases. Emaciation was present in nearly all who had been affected for several months and in some was marked.

In a large number neurasthenic symptoms antedated for a considerable period the outbreak of colic, arthralgia, or encephalopathy. Many recalled that for days and weeks prior to the development of marked symptoms of plumbism they were affected with progressive muscular weakness, the slightest exertion causing fatigue, and often aching in the lower extremities; they had vague pains in various parts of the body, loss of flesh, mental depression, the skin had become sallow, they had passed restless nights, were affected with insomnia and arose in the morning totally unrefreshed.

Among the neurasthenic symptoms to be especially noted are: the mental depression, which was a

¹ Read before the Philadelphia County Medical Society, September 14, 1887.

prominent symptom in 54.68 per cent. (35), in several it approached melancholia; marked impairment of memory present in 17.18 per cent. (11); great prostration and weakness, the slightest exertion causing fatigue, present in 54.68 per cent. (35)—the fatigue was especially marked on rising in the morning, and may have been caused in part by obstinate insomnia, with nocturnal restlessness, of which the same number complained; vague neuralgic pains as a portion of the neurasthenia—apart from severe arthralgia—were present in 9.36 per cent. (6); 7.81 per cent. (5) made complaint of general pruritis, unassociated with icterus, and the same number of cutaneous and muscular hyperesthesia. These symptoms were, in nearly all classes of cases, associated with those indicative both of disordered *prima viæ* and of the specific action of the metal on the gastro-intestinal apparatus. There were very few of the sixty-four that had not more or less pronounced anorexia, associated with a heavily furred tongue, and a very fetid breath, which in some cases was so peculiarly so as to deserve the name metallic. 32.81 per cent. (21) spoke of a bad taste, which 2 described as persistently sweetish; 1 as metallic; 1 as sulphurous, and 4 as sour; 13 were unable to describe theirs intelligently. Nausea was present in a large number, and in several who vomited very little, if at all, and had no colic. Colicky pains of all sorts, severe and light, and attended by more or less constipation, were present in 76.56 per cent. (49), and 60.93 per cent. (39) exhibited the phenomena of pronounced lead-colic. These pains were felt most often about the umbilicus, and following that in frequency about the epigastrium; they were in 53 per cent. (26) of the (49) cases relieved by firm pressure when applied gently and were accompanied by obstinate constipation in 55.10 per cent. (27); and moderate in 34.68 per cent. (17); obstinate constipation, alternating with severe diarrhoea, was present in 1.55 per cent. (1). Agonizingly severe loin pains co-existed with 19 cases of pronounced colic.

The peculiar character of the pulse—diminished in frequency and increased in strength and volume—usually considered one of the characteristic features of lead colic, I did not find present in the five cases I saw in the paroxysms; in these it was frequent and of only moderate strength and volume.

One of these cases was a patient of my own and was of peculiar interest because of her symptoms closely resembling hepatic colic. She is a woman weighing over two hundred pounds, whose first noticeable symptom of plumbism was attacks of exceedingly severe colic always appearing suddenly, and having their seat in the right hypochondrium and thence radiating to various parts of the abdomen and back. They were usually preceded for a day or two by slight colicky pains in the region of the gall-bladder and epigastrium, with constipation, anorexia, and an icteroid hue of skin. There was always during the attacks tenderness on superficial or deep pressure over the hypochondriac region, and the abdomen was distended rather than contracted; constant nausea and frequent vomiting were present, the vomited matter consisting largely

of bile; the bowels were much constipated and the scybala voided were clay-colored; the urine was concentrated, scanty, and contained a large excess of urates, but no albumin or casts. The attacks rarely lasted over eight or twelve hours, being checked without much difficulty by free use of morphine and atropine hypodermatically. Because of her general condition, habits of life, and her known fondness for sweets and fats, colic due to the passage of gall-stones was at first suspected and treatment was instituted for that affection, her feces being carefully washed and strained, but no stones were ever detected. Her gums, which were much retracted, showed a faint bluish streak along the lower incisors. She subsequently developed more marked symptoms of plumbism, but under potassium iodide made a rapid and continuous recovery, entirely regaining color and losing the constipation.

The frequency of the presence of vomiting in all classes of cases, and particularly in those with epigastric and umbilical pains deserves more than passing notice, and would seem to indicate a special irritant action of the lead chromate. It occurred in 81.63 per cent. (40) of the forty-nine cases of light and severe colic, and in eleven (17.18 per cent of the sixty-four) cases in which other symptoms than colic were present. It was present, therefore, in 79.68 per cent. (51) of the whole number of cases and was nearly always severe. The vomited matter had a greenish-yellow or greenish hue. Nausea preceded vomiting and was a quite constant symptom in a few of the sixty-four who did not vomit. Tanquerel, who saw a very large number of cases of plumbism, recorded 1217 carefully studied cases of lead-colic; he found vomiting present in only 33 per cent. (412) of the 1217, and rarely if ever observed it with other manifestations of lead disease than colic. I believe the abdominal pains in all of the 49 cases were colicky and not inflammatory, though I am unable to be as positive regarding this point as I should like. Against it in a minority were the facts that firm pressure seemed to aggravate them greatly, and the abdomen in several cases was distended during the paroxysms. The pulse, too, during the paroxysm in at least 5 cases was far from being characteristic of lead colic. The color of the vomit was probably due to bile and not to the lead chromate, for Tanquerel mentions a somewhat similar colored vomit in his cases which were not due to poisoning by this particular salt of lead, and this same character of vomit continued in many of the cases, at intervals, for several weeks after the poison had ceased to be ingested.

It has been ordinarily supposed that lead chromate is soluble to a very limited extent in the intestinal juices, and hence its ingestion in small quantities cannot give rise to serious symptoms, though Schuchardt¹ states that it appears to act as a corrosive poison and more powerfully even than the acetate, while Wharton² and Stillé suppose it is more or less insoluble, though they believe it sometimes gives rise to acute poisoning owing to its decomposition

¹ Maschka's Handbuch der Gerichtlichen Medicin.

² Medical Jurisprudence.

after it enters the body. Owing to this fancied insolubility and the number of cases now indubitably traced to its use as a food-dye, it might be thought that the samples used by bakers contained lead carbonate as an adulterant and that the poisoning was due to the latter more soluble salt, but Dr. Leffmann has recently ascertained by experiment that, while the commercial samples do not yield lead to distilled water or carbonic acid water under pressure, notable quantities are dissolved in a short time by dilute solutions of the ordinary household acids, citric and acetic, and also by very dilute solutions of hydrochloric acid, or by very dilute solutions of hydrochloric acid and pepsin. The non-solution of lead from commercial lead chromate by carbonic acid under pressure indicates that the samples tested, which include that obtained from Palmer, do not contain lead carbonate. These facts set at rest the question of insolubility, and explain the ease with which poisoning occurred; especially when one reflects that the lead was taken with the food, at a time when it could most readily meet the agents necessary for its solution. No doubt, decomposition rapidly follows its ingestion, and soluble chromium and lead salts are formed which diffuse into the blood.

That the various salts of chromium do act as local and systemic irritants, there can be no reasonable doubt, one has but to consult the various works on toxicology and jurisprudence¹ for abundant evidence on this point. Lead chromate, because of its supposed non-solubility in the stomach, has been thought less toxic than any of the other chromium salts, though Von Linstow² and Leopold³ report 3 cases of acute poisoning due to it, occurring in very young children,⁴ and terminating in death in a very few days, in which the autopsy revealed extensive signs of the action of a corrosive poison, such as softening, ulceration and perforation of the stomach and duodenum, etc., though the amount of lead chromate ingested in each of Von Linstow's cases was said not to have exceeded the one-fifth of a grain. In these latter cases, from the character of various symptoms present and such marked signs of the action of a corrosive poison found post-mortem, as well as from the smallness of the quantity of lead chromate taken, it may be that potassium bichromate, and not lead, was the active toxic agent. In the recent fatal cases it is unfortunate that the viscera were not examined with reference to the action of a corrosive poison. Of the two under my charge, in one, the gastric symptoms were apparently almost nil, in the other, though lead poisoning was suspected to be the cause of death, the source of the poisoning not then being ascertained, the particular salt ingested was not known, and the viscera were removed with as little handling as possible, exclusively for chemical examination.

¹ See Taylor's Treatise on Poisons. Maschka's Handbuch der Gerichtlichen Medicin; Wharton and Stillé's Medical Jurisprudence; Falck's Lehrbuch der Praktischen Toxicologie.

² Vierteljahrsschrift für gerich. Med. u. öffentl. Sanitätswesen, Band xxi. 60.

³ Ibid. Sanitätswesen, Band xvii. 29.

⁴ Leopold's case was at. 2 weeks; Von Linstow's were at. 1½ and 3½ years respectively.

The abruptness of the seizures in many of the recent cases might suggest acute poisoning, but in all of them, by careful inquiry, I succeeded in eliciting a history of some signs of failing health for at least a brief period prior to the onset of the seizures, and in many of slight colicky, arthralgic or head pains suggestive of plumbism. All, too, showed the sallow skin, and none of this class was without at least a faint blue line on the gums. The four members of the Helm family, whom I saw through the kindness of Dr. Hellyer, were notable examples of this; it was ascertained that in these some of the above-mentioned symptoms had been present in a slight degree for the space of a week or ten days prior to the marked outbreak of their trouble, which occurred on June 18th. They were then within a day or so of one another taken suddenly ill; their principal symptoms being, collectively, nausea and frequent vomiting, often uncontrollable, the vomited matter having a yellow or greenish-yellow hue; heavily coated tongue; exceedingly fetid breath; severe, paroxysmal colicky pain above the umbilicus, aggravated by food and apparently by pressure, but decreased by warmth and poultices; severe pains in the loins. Very obstinate constipation was present in all save Annie Helm, whose bowels could be moved without trouble by mild purgatives and whose passages were described to be exceedingly yellow. All had very severe pains in the knees and ankles unattended by heat, redness, or swelling in any save Mr. Helm, who, after a few days, had an attack of acute articular rheumatism as a complication. Violent continuous cephalgia was present in Annie¹ alone and was the precursor of convulsions, which appeared on the fifth day. The convulsions were at first local but soon became general, violent, and long-continued; in the intervals she lay in a comatose state and died on the eighth day. The skin of all was sallow, Mr. H. and Annie becoming quite jaundiced, and on the gums of all could be seen a slate blue line.

In some of the Palmer cases, for example, the first two children, Charles, at. 7 years, William, at. 10 years, which, from not being able to get detailed histories, I have excluded from the cases here analyzed, symptoms were present indicating the action of an irritant poison. They were seized, one on May 9th, the other on June 27, 1884, suddenly with nausea, vomiting, abdominal pains, great prostration, and continuous convulsions, and died within 24 to 36 hours after the onset of the symptoms. They were both, from all I can learn, thought to be in good health on the morning of the day of seizure, and were known to have eaten largely of the baker's colored cakes on that day, while one, in addition, drank quantities of lemonade. I have notes of a case resembling these as regards the abruptness of the onset, which, however, did not have a fatal termination. It was that of a boy of 12 years, who, some hours after a hearty meal of dyed cakes procured from Palmer, was seized with identical symptoms. He has since come under my observation

¹ Notable quantities of lead were found in her viscera by Drs. Reese and Leffmann, vide THE MEDICAL NEWS, Aug. 27, 1887. p. 231, Case v.

suffering with lead cephalgia and arthralgic pains in the knees and ankles. Six cases, similar to the last, exhibiting symptoms of acute poisoning due to the same cause, were reported in the *Medical Times and Gazette* of December 24, 1859.

Arthralgia was present in 73.43 per cent. (47); in 56.25 per cent. (36) it affected the inferior extremities, including the loins, only; in 17.18 per cent. (11) it was more or less general. In 64 per cent. (41) it was severe, agonizingly so in a few; in the remaining (6) cases it was slight, and in all the pains in the lower limbs were of greater severity than in the upper. In 37.50 per cent. (24) it was associated with headache, which, in most of the instances, appeared simultaneously; in 20 of these the headache was severe, in 4 mild. Severe arthralgia, without any preceding or following colic, but with usually cachexia, disordered *prima viæ*, and (in two) constant diarrhea, occurred in 8 of the 47. In 10 cases the arthralgia preceded for a considerable period the colic and other symptoms, save cachexia and debility; in 29 cases it occurred coincidently with or following colic. The flexor surfaces of the knees and ankles and usually the flexor muscles about these joints, were most affected; cramps in the calves and posterior and outer aspect of the thighs were frequent accompaniments of the pains. In several burning pain was felt in the soles of the feet and in the toes, accompanied by a hyperesthetic condition of the skin of the same parts. In the 11 cases in which the superior extremities in addition to the inferior were affected, the pains were less severe above than below, and here, too, showed a preference for the flexor surfaces. The pains of all were acute and burning, or dull and aching in character, were always worse at night and never accompanied by inflammatory conditions, such as heat, redness, or swelling, save in the case of Helm, mentioned on page 755. They were in all assuaged by pressure and friction, but in many, increased by motion, and their onset was often preceded by ataxic symptoms in the limbs.

Many made complaint of a dull aching throughout the whole body, referring it especially to the osseous system. It was particularly marked at night and usually antedated colic and arthralgia.

Paralysis of the extensor muscles of the forearm, typical wrist-drop, occurred in only two; in both it was bilateral and seemingly complete. I was unable in either case to get the electrical reactions, because of ignorant opposition on the part of the subjects and their friends. In three cases there was slight ataxia of the extensors of the wrists and fingers, but paralysis did not occur.

Headache was present in 73.43 per cent. (47); in 67.18 per cent. (43) it was more or less constant for a considerable period, with exacerbations and remissions, and of sufficient severity to indicate involvement of the deep cranial structures. In 35.93 per cent. (23) it was present without arthralgia. It was felt most severely and frequently in the frontal regions, and, following that, in the occipital; in a few it was equally severe and constant in both regions. Some, in addition, complained of pain in the nucha, and in a small number the pains were equally distributed about the head.

Encephalopathy was present in 23.43 per cent.¹ (15); in 17.18 per cent. (11) it was manifested as eclampsia; in 2 (3.12 per cent.) as delirium; in 1 as modification of the delirious form, melancholia with accompanying hallucinations and delusions; and in 1 as coma. The eclamptic seizures were of epileptiform type, and were preceded in 10 of the 11 cases for days or weeks by other manifestations of saturnism, such as cachexia, colic, arthralgia, or severe continuous headache; and in at least 5 of these they occurred primarily, during or immediately subsequent to an attack of colic and arthralgia. In at least 4 of the 10, excruciating cephalgia preceded for several days their outbreak. The convulsions were in all, general, severe, and in several, violent. The duration was longer than that of idiopathic epilepsy, the clonic stage often continuing upward of a half-hour, during which the tongue was known to be bitten in at least 6. The intervals in the 8 fatal cases were exceedingly brief, the convulsions rapidly recurring, until death took place in from eight hours to four days. In these, too, after the first few seizures, consciousness was entirely lost, and stupor or coma persisted until dissolution. I was unable to discover that an aura preceded the convulsive attacks in any of the 11 cases save 1, yet it may have in all; in this one it preceded only three spasms out of several. In 7 of the 11, I was able to discover the probable time existing between the first exposure and the appearance of the convulsions, during which lead was constantly ingested. In one it was 15 days; 32 in another, and 33 in a third; 2½ months in a fourth; 4 months in a fifth, and 4½ months in a sixth—these were all members of one family; in a seventh it was about 2½ months.

This last case presents several points of interest. It may be one of a type which is occasionally overlooked. It is that of Mrs. S., aged thirty years, of good previous health, who had eaten from early in April, 1886, for a period of fourteen months, almost daily of the dyed cakes. For one-half of this period she ate daily from four to six of the buns, frequently then partaking of nothing else at the morning or evening meal. For two or three months anterior to her confinement on May 23, 1886, she began losing strength, was restless and sleepless at night, rising in the morning weak, enervated, and listless; she had anorexia, occasional nausea, vomiting, colicky pains, and constant dull aching in the knees and ankles; her skin became sallow and pruritic, and the bowels constipated. About June 15, 1886, during an attack of severe headache and of what presented the phenomena of mild lead-colic, save that diarrhea alternated with constipation, she had a violent epileptiform convolution, lasting nearly an hour, during which she severely bit her tongue, as she did in all subsequent convulsions; no aura preceded. On July 6, 1886, all the less pro-

¹ If three of the earlier Palmer cases, the two boys before mentioned and the first Mrs. Palmer, were added to these, this percentage would be raised to 46.86 or 18 cases out of 67, and that of the eclamptic variety to 20.89 or 14 cases out of 67. They were undoubtedly cases of lead eclampsia, and are excluded from this paper only because the lack of detailed history renders them unavailable for statistical purposes.

nounced lead symptoms continuing, she had three convulsions in the space of three hours; severe headache and slight colic preceded for two or three days. On the 25th of the same month, after a day or two of colic and headache, she had a number of convulsions lasting four and a half hours, with intervals of unconsciousness. In December, 1886, and March, 1887, they recurred, preceded by the same symptoms, and now, for the first time, prior to these and the last convulsions occurring at midnight on May 28, 1887, she had a distinct sensory aura of numbness and tingling throughout the body immediately preceding, and she felt a seizure imminent. The spasm of May 28th was very violent, and was preceded for a few hours only by abdominal cramps, which appeared during the evening after eating a number of particularly yellow cakes at her noon lunch.

I saw her early in August last for the first time, she then had been for months under the treatment of irregular practitioners, who had been unable to discover the nature or source of her malady; she presented marked symptoms of plumbism with pronounced lead cachexia. There were present in addition, frequent attacks of syncope by day, and at night delirium accompanied by limited clonic spasms. There was a pronounced blue line along the lower gum, which was much retracted from the teeth; in the upper gum where no teeth existed, no blueness could be discovered. Her heart was over-acting with a ringing, apical second sound. The urine was found to contain lead in notable quantities, but though repeatedly carefully examined for albumin and casts none were at any time found. She was under treatment for a short time and improved; I then lost sight of her. I have since understood that she has developed delusional mania.

One of the two cases of the delirious variety of encephalopathy has been already described;¹ the other was a more pronounced one. It was that of a girl, E. B., aged eighteen, who was profoundly saturated with lead through baker Schmid's cakes. Preceding a marked outbreak of arthralgia and encephalopathy she had symptoms indicating mental and physical exhaustion; she entirely lost her memory, was incapable of exertion, and was constantly wearied; there were present well-marked lead-cachexia, total anorexia, coated tongue, fetid breath, frequent nausea, and vomiting of a greenish-yellow fluid, obstinate constipation, an intense blue line on both gums, so marked that it was noticed by her acquaintances, but at no time did she have colic. She had three or more seizures, lasting two or three weeks at a time (with a number of minor ones), in which she was almost constantly delirious with very brief lucid intervals. They were always preceded for a day or two by intense frontal headache and exceedingly severe pains in the knees, calves of the legs, ankles, soles of the feet, and, occasionally, the loins. There were intermissions of about a week between the attacks, and all her symptoms were aggravated at night.

The case of melancholia with accompanying delu-

sions deserves at least brief consideration. It was referred to on page 753 and is of interest because the absence of the more pronounced symptoms of lead-poisoning caused it to be mistaken by two physicians for several quite different affections. The following are the points briefly given:

Mrs. V. G., aged twenty-two; no children; had been for months a hearty eater of Palmer's dyed buns; in excellent health up to three and a half months ago, then began to grow progressively weak, was easily wearied, the slightest exertion causing great fatigue; she suffered with insomnia, was depressed mentally, and there were constantly present such disorders of the digestive apparatus as coated tongue, foul breath, bad taste, frequent nausea with occasional vomiting, especially after food, mild constipation, and occasional slight colicky pains in the left lumbar and inguinal regions. There were also total anorexia, and earthy-yellow hue of skin, and severe, constant, dull, aching pains in the knees, with a feeling of soreness in the feet. Violent occipital and frontal headache appeared shortly after she began to fail in health and soon became constant with remissions and agonizing exacerbations often associated with transient amblyopia. About the same time she was affected with subjective and objective vertigo, the slightest exertion causing giddiness. Since the headache and vertigo have been present she has frequent hallucinations and delusions of sight and hearing, among others, she would imagine she was approached by persons, who did not exist, with whom she would carry on lengthy conversations. During and following these spells she becomes exceedingly despondent and has dismal forebodings.

At the present time, in addition to the above symptoms, she complains of slight ataxia of the forearms, though the muscles respond normally to faradism and galvanism. The heart is overacting with an accentuated second sound at the apex and high tension in the pulse at the wrist. Various specimens of her urine were carefully examined for albumin at different times, but always with a negative result.¹ As her sight had recently failed somewhat, the eye-ground was examined by Dr. Hansell, who reported that "in the right eye the nerve is oval; the upper and outer quadrant is lined with pigment; the lower part is clear and sharply bounded. There is venous pulsation; the arteries are slightly swollen, more so than normal. The above conditions are even more pronounced in the left eye." The gums of this case did not show what is ordinarily regarded as a "blue line," but within the thin margin of gum grasping the neck of the upper left central incisor could be seen by careful inspection with the naked eye, and more easily with a single lens of moderate power, a number of bluish-black dots which were undoubtedly lead. A piece of white paper pushed up under this edge of the gum, between it and the neck of the tooth, brought out the dots with great distinctness. The thin edge of gum about the necks of the lower

¹ Her urine was not examined for lead until she had almost entirely recovered, and had discontinued the potassium iodide. It was then resumed for a few days, and a sample collected. Several tests were made of it by Dr. Leffmann, and distinct traces of lead found.

central incisors showed this pigmentation somewhat more plainly.

The patient¹ with the comatose variety of encephalopathy presented very much the same symptoms prior to the full development of the encephalopathy as the cases whose histories I have just related, so no detailed description need be given. He was profoundly affected by lead. With him, intense frontal headache, which he described as "deep-seated," and very severe arthralgia of the lower limbs preceded, for a short period, the coma. Though there had been marked gastric derangements, with the various manifestations of lead-colic, it was less evident at that time. So far as I could learn, he had but one attack of coma, very prompt treatment preventing a repetition; this appeared suddenly, during severe headache and arthralgia; he was totally unconscious and remained in this condition for seventeen hours. A careful examination of the urine showed there was no associated kidney trouble.

Encephalopathy is undoubtedly the severest and probably the most infrequent of all the manifestations of lead-poisoning. It has been met with almost exclusively among those whose work favors a copious absorption of the metal. There seems slight doubt, from the large percentage among these 64 cases which are probably but a small part of the number poisoned by the two bakers, that the affection has been more than once overlooked and attributed to other causes. There is now no question, from recent developments, that the poisoning has been going on unsuspected in various sections of the city for years. Since my attention has been directed to the matter, I have been surprised, in looking over the mortuary records of the past few months, to see the large number of deaths returned as convulsions. The matter seems to deserve more attention from the profession than it has yet received.

The gums of 89 per cent. (57) of the 64 showed the "blue line" and it probably existed also in 6 of the remaining 7 cases, but was not looked for. In 24 of the cases the "line" was very marked above and below on the labial and lingual surfaces of the gums, about the necks of the teeth, and was accompanied by more or less retraction of the gum, which bled readily when subjected to even light friction. In 8 of these, who were intensely saturated with lead, the retraction was extreme and the borders of the affected gums looked as if fringed, displaying much of the neck surface of the teeth, which were usually of a brown color. In 16 there was a moderately well-marked "line," either below or above, in the edge of the gum about the necks of the incisors, canines or bicuspids. In these the retraction of the gum was not great, but the thin edge of the mucous membrane grasping the neck had become atrophied, and the edge of the gum containing the deposited metal could be readily separated from the neck and a portion of the fang of the tooth. In 17 the "line" consisted of either a faint, bluish-black streak, limited to the mucous membrane grasping the neck, or of a number of fine bluish-black dots as described in the case of Mrs. V. G., irregularly distributed within the same portion

of gum; these dots, or the streak which seemed to be simply an aggregation of them, were most frequently limited to a portion of gum grasping a single tooth, often one of the bicuspids or anterior molars, so that care had to be taken that it was not overlooked. The "line" in most instances was more marked below than above, and much more pronounced on the labial than on the lingual surface. A severe case was seen in that of the wife of one of the bakers, who was thoroughly saturated with the metal. The labial surface of the whole gum in the upper and in the lower jaw was deeply dyed, beside there being a deep line in the gums at their junction with the teeth.

The mortality in the 64 thus far is 12.5 per cent. The 8 deaths were among the eclamptic cases, making a death-rate in the latter of 72.72 per cent. If with these 8 the 3 were included, mentioned in the foot note on page 756, the general mortality would be raised to 16.41 per cent., or 11 deaths out of 67, and the mortality in the eclamptic cases would reach 78.57 per cent., or 11 deaths out of 14.

It is worthy of note that in the viscera of all of the 5 fatal cases examined by Drs. Reese¹ and Leffmann lead was found, and in 4 in notable quantities. It was encountered in large quantities in the liver. In only 2 of the 5 were the brain and spinal cord examined; these organs yielded to several tests distinct evidence of its presence, which indicates that it would probably have been found in the same organs in all had they been examined.

In conclusion I desire to express my thanks to Dr. Leffmann for examining the urine of several of the cases for lead, to Dr. Hansell for eye examinations, to Drs. E. Hellyer, Isaac MacBride, and W. K. Brown, for permitting me to see and study their cases, and to Drs. A. A. G. Starck and W. G. Bobb for histories of their cases, some of which I have used in the preparation of this paper.

2628 N. FIFTH ST.

A NEW CHROMOGENIC BACILLUS—BACILLUS COERULEUS.

BY ALLEN J. SMITH, M.D.,
ASSISTANT DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

IN a cultivation of the organisms in water from the Schuylkill River (Belmont Reservoir), planted January 15, 1886, there appeared a fungus of intense blue color, which, on examination and further culture, proved to be an unknown species of chromogenic bacillus.

It grows well on boiled potato at ordinary temperatures, with at first a beautiful dark blue hue, deepening into an intense blue-black, as the coloring grows old. The colonies when developed fully are marked by numerous cup-shaped depressions with elevated borders. It is aerobic so far as its color is concerned, the cultures in the mass of gelatine-peptone in tubes invariably developing as colorless growths, while the upper or surface part of the same culture shows a bluish tinge, faint because of the thinness of the stratum. Liquefaction of the surface invariably attends the cultures in peptone

¹ Whom I saw through the kindness of Dr. Isaac MacBride.

¹ Vide report in THE MEDICAL NEWS, Aug. 27, 1887.

gelatine. The color of the bacillus is contained in the cells, and cannot be dissolved out by water or alcohol; nor is it affected by acids. On potato, where the color is best seen, the bacillus foci grow only on the surface, not penetrating to any depth, as is the case with the micrococcus cyaneus.

The bacillus, as seen under the microscope, is from 0.002 to 0.0025 mm. in length, and 0.0005 in width. It frequently develops in leptothrrix-like chains. Some few of the individuals on the specimens mounted present a comma shape, although this is probably accidental, due to overheating in the preparation. An excellent stain for it is the ordinary methyl-violet. For its recognition the higher powers of the microscope should be employed, although the individuals can be discovered with a good $\frac{1}{4}$ th inch lens.

It is possible that this form might be confused with bacillus syncyaneus, bacillus violaceus, or micrococcus cyaneus. The color, however, is so intense and in old colonies so dark that it alone should differentiate in every instance.

The coloring matter of *bacillus syncyaneus* (*Beiträge z. Biologie d. Pflanzen*, vol. iii. p. 187) is of a lighter shade, and is changed by soda or potash to a peach-blossom pink, ammonia changing it to a violet color—to none of which reactions the color of *bacillus coeruleus* responds. The *bacillus violaceus* (*Ann. Societ. Nat. Moden.*, xiv. 1880, and *Botanisch. Centralblatt*, 1, 1528) grows best on solution of egg albumin, and the coloring is of a characteristic hue, and the color readily soluble in alcohol. The *micrococcus cyaneus* (*Cohn, Schröter*) grows well on boiled potato, as does *bacillus coeruleus*, but penetrates with its blue color deep into the slice; its color is soluble in water, the solution at first green and later blue. This micrococcus very readily produces softening and liquefaction, while the *bacillus coeruleus* produces but a comparatively small amount of such change; and microscopically the diagnosis is readily made. The *micrococcus violaceus* is distinguishable from the *bacillus coeruleus* by its characteristic hue and its mode of growth (in gelatinous drops of a violet color), and later by the microscope.

Like the other chromogenic bacilli generally, the *bacillus coeruleus* seems to be non-pathogenic, and is interesting only so far as being an addition to our knowledge of microscopic botany.

223 SOUTH SEVENTEENTH ST., PHILADELPHIA.

EFFECT OF BERGEON'S TREATMENT ON THE URINE OF PHTHISICAL PATIENTS.

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AND
C. F. ADAMS, PH.G., M.D.,
OF TRENTON, N.J.

We have the theory that hydrogen sulphide, when administered by rectal injection, is not absorbed by the system, but that, being carried by the venous system to the lungs and there exhaled, it acts only locally on the mucous membrane; such being the case, it would have no effect on the urine, but if

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it was absorbed the amount of sulphates would be largely increased. With the object of ascertaining the fact we made a series of quantitative analyses of the urine of patients thus treated.

The sulphates were estimated by means of a standard solution of baric chloride and proved by a solution of potassic sulphate, as recommended by Neubauer and Vogel; the chlorides, by Mohr's nitrate of silver method.

The phosphates were estimated by means of a standard solution of uranic acetate in the presence of an acidulated solution of sodic acetate, with potassic ferrocyanide as indicator.

The urea was measured by mixing a solution of sodic hypochlorite with the urine, thus decomposing the urea, and then measuring the nitrogen given off, and estimating from that by means of Lyon's apparatus.

Hydrogen sulphide was detected by heating acidulated urine, and allowing the vapor to come in contact with blotting paper moistened with a solution of plumbic acetate, and also by adding some of the lead solution to the urine, which would give a black precipitate.

The ammonia was detected by hydrochloric acid giving white fumes, as well as by red litmus paper, which would be turned blue by the urine, when by the application of heat it would return to its original color.

In selecting cases we endeavored to obtain the different types and stages of the disease represented, as well as possible.

No. 1 was in the third stage, a cavity in each lung, sonorous and crackling râles, copious expectoration and night-sweats, anorexia; pulse 115-150; respiration 50; temperature 102°; urine scanty; herpetic eruption on the face, and confined to his bed.

In six week he was able to exercise in the yards, night-sweats ceased, cough and expectoration slight, good appetite, eruption on face had disappeared.

No. 2, when admitted to the hospital, had a severe hemorrhage; pulse 118; cavity in right lung, expectoration thick and yellow, not profuse. After three months' treatment night-sweats have ceased, cough slight; pulse 90; appetite very good; is gaining strength. The disease was not checked before a cavity formed in the left lung also, but now both lungs are clearing up rapidly.

No. 3, when admitted, had a cough, subcrepitant râles, dulness on percussion. All symptoms generally improved, and is comparatively well.

No. 4 was admitted to the hospital, suffering from a severe hemorrhage from the rectum, weak and fainting. Cough, expectoration thin, dulness on percussion at both apices; large, cold abscess on his neck below lower jaw.

July 21. Lanced abscess.

Oct. 14. Cough and night-sweats ceased; slight discharge from abscess; gain in flesh and strength.

No. 5 commenced treatment July 19, 1887. Troublesome cough; free expectoration of thin sputa; night-sweats, hemorrhage, anorexia.

Oct. 22. Cough and night-sweats ceased; lungs cleared up; good appetite; gaining flesh; slight expectoration in the morning.

No. 1.	May 21.	June 11.	June 18.	June 28.	July 5.	July 25.	Sept. 28.
Amount of urine in 24 hours	480 c.c.	896 c.c.	816 c.c.	1552 c.c.	720 c.c.	540 c.c.	1680 c.c.
Specific gravity	1031	1024	1023	1010	1034	1020	1008
Amount of urea in 24 hours	18.4 c.c.	12 c.c.	5.4 c.c.	21 c.c.	40 c.c.	8.7 c.c.	7.8 c.c.
" of chlorides in 24 hours	12	6.6	7.3	9.5	10	3	6.7
" of sulphuric acid in 24 hours	1.15	14	19	14	15.8	3	3.8
" phosphoric " " " " "	.....	3.7	2.	1.5	3.2		
Reaction	NH ₃	NH ₃	alk.	alk.	alk.	acid.	acid.
H ₂ S . . . . .	.....	.....	free.	.....	free.		

BEFORE TREATMENT.				DURING TREATMENT.				
No. 2.	June 14.	June 21.	June 28.	July 5.	July 19.	July 25.	Aug. 9.	Aug. 30.
Amount of urine in 24 hours	640 c.c.	251 c.c.	896 c.c.	735 c.c.	420 c.c.	855 c.c.	1125 c.c.	1500 c.c.
" of urea " " " " "	3	3.8	9.4	4.4	16.5	8.5	9	12
" of chlorides in 24 hours	2	2.75	3	14.7	5.7	5	20	12
" of phosphoric acid in 24 hrs.	5.2	5	2.3	1.6	temp. 103 $\frac{1}{2}$	temp. 101 $\frac{1}{2}$	temp. nor.	1.6
" of sulphuric " " " " "	2.7	5.5	2	8.8	3	6.8	3.6	2.2
Reaction	neut.	neut.	neut.	acid.	acid.	neut.	acid.	acid.

BEFORE TREATMENT.			DURING TREATMENT.			
No. 3.	June 14.	June 21.	June 28.	July 5.	July 12.	
Amount of urine in 24 hours	1472 c.c.	800 c.c.	1024 c.c.	1098 c.c.	1360 c.c.	
" of urea " " " " "	3.79	3	14	30	10	
" of chlorides in 24 hours	2.56	7.2	11	15	15	
" of phosphoric acid in 24 hours	0.96	0.8	3	2.4	2	
" of sulphuric " " " " "	0.89	3.2	11	12	10	
Reaction	alk.	alk.	alk.	alk.	alk.	

BEFORE TREATMENT.			DURING TREATMENT.			
No. 4.	June 21.	July 1.	July 21.	Aug. 5.	Sept. 6.	Oct. 14.
Amount of urine in 24 hours	1130 c.c.	900 c.c.	495 c.c.	1125 c.c.	1110 c.c.	1140 c.c.
" of urea " " " " "	38	12	10	28	18	20
" of chlorides in 24 hours	11	11.7	5	33	11	16
" of phosphoric acid in 24 hours	2.68	2.7	1.5	1.7	2	1.5
" of sulphuric " " " " "	1.7	14.4	6	19	3.1	2.7
Reaction	NH ₃	alk.	acid.	acid.	acid.	acid.
Color	milky.	milky H S	clear.	clear.	clear.	clear.

ON TREATMENT TWO DAYS BEFORE FIRST ANALYSIS.

No. 5.	July 22.	July 29.	Aug. 5.	Sept. 20.	Oct. 7.
Amount of urine in 24 hours	555 c.c.	795 c.c.	600 c.c.	1650 c.c.	1240 c.c.
" of urea " " " " "	8.3	11.9	4.2	6	5
" of chlorides in 24 hours	2	7.9	5.4	11	10
" of sulphuric acid	5.5	10.3	3	2.4	2.5
Reaction	alk.	alk.	acid.	acid.	acid.
H ₂ S	trace.				

No. 6 commenced treatment June 22d. He was in the second stage of the disease; very troublesome cough, requiring about two grains of morphia through the night to control it.

July 25. Morphia and gas stopped. He has only a slight cough and expectoration in the morning; has gained in weight thirty pounds.

Up to June 20th, we made the gas from sodic sulphite, not being able to get sodic sulphide before that time. On examining the urine of four patients a week after the sulphide was substituted, we found that the percentage of sulphur was markedly decreased in them all; on resuming the sulphite, it again increased. There seemed to be much less pain from gas from the sulphite than from the sulphide.

After being on the treatment five or six weeks, the patients do not seem to be able to retain the gas so well; although it be repeated several times a day, and a marked fall in the percentage is noticeable, yet they continue to improve.

The urine of about one-half of the patients at the beginning of the treatment was alkaline, two of them ammoniacal. In all but one case, it became acid in from four to six weeks. Of seventeen cases, but one has died. He was very ill when the administration of the sulphuretted hydrogen was begun; he survived a month, growing rapidly worse until he expired. Six were discharged free from cough. All have gained in flesh. All types were benefited, the most markedly being those complicated with bronchitis.

The action of the gas on the bowels is to constipate rather than to relax. It has a slight action on the heart, tending to slow but not to depress it. It seems to have a specific action on the skin, rendering it smooth and clear.

From the effect it has on the urine, we believe it would be of service in certain diseases of the urinary tract.

By reference to the tables it will be seen that the sulphates are largely increased in amount, and that the sulphuretted hydrogen was frequently detected in a free state in the urine; in fact, much oftener than in the breath.

The toxic action of this gas causes an increased secretion from the gastro-intestinal canal and skin, and is laxative, finally impairing the red blood-globules, causing great anaemia, wasting, debility, and a feeble circulation. These symptoms all accompany phthisis.

If sulphuretted hydrogen has no toxic action on microorganisms, is it then an instance of *similia similibus curantur?*

MEDICAL PROGRESS.

THE TREATMENT OF HEADACHES BY NITRO GLYCERINE.—DR. TRUSEVICH publishes in the *Ejenedel'naya Klinicheskaya Gazeta* a series of observations on the effect of nitro-glycerine on headaches. He adopts, in the main, the classification of headaches made by Dr. Day, whose work he translated into Russian, in which language it has already gone through two editions. The

preparation generally used was the 1 per cent. alcoholic solution, though in a very obstinate case the 10 per cent. solution was used, two drops being first given, and, after an interval of two minutes, three more. The result of this heroic medication was that the patient, a girl of fifteen, became pallid, and her pulse very weak; however, a little water and some smelling salts quickly revived her, and she was none the worse. The nitro-glycerine had no effect on the headache, which was of a persistent character, and was probably due to some organic lesion, perhaps an affection of the cranial bones. As a rule, two or three one-drop or two-drop doses of the 1 per cent. solution placed on the tongue at intervals of a very few minutes sufficed to arrest the headache. The conclusion arrived at was, that all cases which depend entirely, or almost entirely, on a vaso-constrictor neurosis are immediately curable by nitro-glycerine. In cases where the cerebral anaemia is partly due to deficiency or poorness of blood, milk, iron, arsenic, quinine, and other tonic remedies are, of course, required in addition to the nitro-glycerine. The chief indications for the successful treatment of migraine by nitro-glycerine are pallor of the face and a paroxysmal character of the pains, also their augmentation on pressure of the carotids, and their diminution when the head is lowered. In "nervo-hyperæmic headaches" nitro-glycerine is useful, but it only acts indirectly by dilating the vessels in other parts of the system, and thus relieving the congestion in the cerebral vessels. It is positively injurious in headaches depending on passive hyperæmia. On this subject, however, Dr. Trusevich promises a future article. As a rule, he thinks that if nitro-glycerine fails to relieve, the prognosis is probably bad, as the pain is generally due to some organic lesion, such as thickening of the fibrous coverings following chronic alcoholism or syphilis, or to some osteophyte caused by periostitis, or, lastly, to morbid changes in the cranial bones. In some headaches of rheumatic origin, nitro-glycerine appears to have some effect, but Dr. Trusevich thinks that in others massage would probably be more beneficial. Where headaches are due to heart, lung, or to hepatic disease which causes passive congestion in the cerebral vessels, nitro-glycerine cannot be expected to do much good.—*Lancet*, Dec. 3, 1887.

ICHTHYOL.—The *Lancet* of December 3, 1887, speaks as follows regarding the value of ichthylol:

Ichtihyol has now been in use some years, and bids fair to maintain its original reputation as a valuable medicament of very wide application. It is employed pure in rare cases, but more frequently in solution in water, oil, or a glycerine of the strength of 20 to 50 per cent., for external applications in bruises, sprains, rheumatism, burns, chilblains, etc. It may be administered internally in 1 per cent. solution, or in the form of pills, in cases of chronic skin disease, gastric affections, and rheumatism. As a spray in 10 per cent. solution it has been employed in the treatment of throat and nasal affections. Ointments of various strengths are compounded for external inunction in erysipelas and rheumatism. An alcoholic ethereal solution of the strength of 10 per cent. has been successful in relieving neuralgia when sprayed on the painful region; stronger solutions are used for sciatica and lumbago. Plasters and fomentations of ichthylol are also used, and a soap is made for

preserving the skin and relieving chapped hands and kindred ailments.

STROPHANTHIN.—Among the various chemical tests and reactions of this substance the following are interesting:

Strophanthin gives, with strong sulphuric acid, a brilliant green color, changing to yellow and to brown.

With sulphuric acid and potassium bichromate a blue color is produced.

Nitric and hydrochloric acids, caustic potash and ammonia, and other alkalies produce a yellow color.

Nitrate of silver produces a reddish brown color, followed by a black precipitate.

Tannic acid gives an abundant white precipitate soluble in excess.

Chemical tests prove the existence in strophanthin of an organic body; whether it is a glucoside or alkaloid is not known.—*Journal de Médecine*, Nov. 27, 1887.

MYOMA OF THE FEMALE BLADDER; REMOVAL BY SUPRAPUBLIC INCISION; RECOVERY.—At a recent meeting of the Clinical Society of London, Drs. GIBBONS and PORTER reported the following case:

The patient was a girl aged eighteen, of good general health, and the daughter of healthy parents. The earliest symptoms noticed were inability to retain the urine, and pain on making effort to do so. She was treated "for stone in the bladder, but without any relief." When admitted into the Grosvenor Hospital for Women and Children, she was found to have lost all control over the urine, which dribbled away from her; she experienced a dull aching pain in the perineum. There was no blood in the urine at the time. On bimanual examination a tumor was detected in the bladder; rapid dilatation of the urethra was accomplished with a view to a more accurate examination of this tumor. A week subsequently, the patient being under an anaesthetic, the tumor was removed by means of a galvanocautery écraseur; the loop of platinum wire was introduced through the urethra, and fitted over the tumor with the aid of the fingers passed into the bladder through a suprapubic incision which had been previously made for this purpose. When the platinum loop had been fixed round the base of the tumor, it was tightened up, and the current turned on. In five minutes the division of the tumor was complete; there was no hemorrhage during, or subsequently to, the operation. After removal the base of the growth and the interior of the bladder were carefully examined by the eye, a small incandescent electric lamp being introduced for the purpose; the advantages of this method were at once very apparent, for every part of the bladder could in turn be seen. The wound in the bladder was carefully sutured. There were no subsequent bad symptoms. The girl quickly and completely recovered, and had since remained well.—*British Medical Journal*, Dec. 3, 1887.

A CASE OF RETRO-STERNAL ABSCESS, WITH PARTIAL RESECTION OF THE STERNUM; RECOVERY.—RUSTIZKY, of Kiev, reports in the *Centralblatt für Chirurgie*, No. 48, 1887, the case of a man aged twenty-three, previously healthy, who was admitted to the hospital suffering from pyæmia. Beneath the lower jaw were three

openings from which pus flowed. The percussion note over the anterior thorax was dulled; auscultation revealed the movement of imprisoned fluid. A median incision in the jugular fossa was made to the sternum, and the anterior mediastinum was washed out with a solution of salicylic acid, by an elastic catheter. Only partial relief followed this procedure, and finally resection of the manubrium and upper portion of the sternum was performed. Strict antiseptic and stimulant treatment was carried out, and the patient made a good recovery. The thoracic wall was sufficiently replaced by scar tissue to enable the patient to be about with comfort.

A PERFECT SOLUTION OF CHLORIDE OF ZINC.—The *Journal de Médecine* of November 27, 1887, gives the following formula for a stable solution of chloride of zinc:

Zinc. chlorid.	3	10.
Aqua destill.	0	2.
Acid. hydrochlor. pur.	m	45.

This will be found a clear and permanent solution for external use.

ESOPHAGOTOMY FOR THE EXTRACTION OF AN IMPACTED TOOTH-PLATE.—DR. WRIGHT reports, in *The Medical Chronicle* for December, 1887, the case of a woman, aged twenty-two, on whom he performed the following operation. The usual incision on the left side of the neck from the thyroid cartilage downward nearly to the sternum was made. The operation itself presented little difficulty. After division of the omohyoid and the deep fascia, the handle of the scalpel passed readily in separating the carotid sheath from the thyroid gland and exposing the gullet. A short-beaked sound passed down the cesophagus from the mouth made it very easy to open the tube, and the tooth-plate was then felt with the finger, lying well below the cricoid, but it was only after a good deal of manipulation and traction applied in various directions that the plate, which was exceedingly firmly fixed, could be extracted. It was disengaged at last, mainly by a forcible twisting movement in the long axis of the gullet. The cesophagus was closed with four or five catgut sutures, and the wound, after being well dusted with iodoform, was plugged with iodoform gauze. The gauze was removed on the following day, and a large drainage tube substituted for it. The patient was fed by enemata for a week, and then an esophageal tube was passed, and she was fed for two days partly through this. So much pain, however, was caused by the tube that she was allowed to swallow her food in the ordinary way on the next day. No escape of fluid from the gullet ever took place through the wound, and convalescence was uninterrupted. The wound healed somewhat slowly, and it is only now—two weeks after the operation—that practically perfect swallowing power has returned.

The size of the tooth-plate is $1\frac{3}{4}$ inches in length, $1\frac{1}{2}$ inches in breadth; it carries two incisor teeth, and has a sharp hook at one side by which it was kept in place. The other hook had broken off, and hence the plate became insecure.

VESICATION OF THE HEPATIC REGION FOR CROUP.—MOROT, of Vichy, believes and has practised the theory that puncture and vesication of the skin just beneath

the gall-bladder relaxes the spasm and dyspnoea of croup. He accounts for the effect by a diversion of the blood current from the larynx, and a slight abstraction of blood.—*Revue de Thérapeutique*, Dec. 1, 1887.

KOUMISSED PEPTONES.—DR. ANDERSON, in the *British Medical Journal* of December 3, 1887, describes this substance which he has prepared, as follows:

It is milk, or milk and other foods; first, by the action of pepsin, of pancreaticine, or of both, almost completely digested, and thereby converted into peptone, or still further split up, and then made into koumiss. In the process of peptonizing about twenty-five per cent. of water is driven off, and none is previously added. Koumissed peptones are, therefore, of about fifty per cent. greater food value than ordinary koumiss. They are more fluid, have a sediment of far greater impalpability, and are incomparably more digestible and easily assimilable than ordinary koumiss, or even than Russian fermented mare's milk. While the author of this paper claims to be independently a discoverer of ordinary koumiss, he is the acknowledged inventor and institutor of this, the highest expression of a perfect koumiss. It is of especial use in the most irritable and adynamic types of wasting diseases; and can be, and has been taken and retained, when all other foods, ordinary koumiss not excepted, have been rejected. Valuable lives have been saved which would have been lost but for its administration.

Hitherto I have spoken of the use of cane sugar in the making of koumiss, etc. I now come to speak of the substitution of honey. For years past seldom has cane sugar been used by me. In the preparation of ordinary foods, grape sugar, and sometimes sugar of milk, has replaced cane sugar on the ground of the disagreeable eructative and fermentative action the latter exerts when administered. This cannot be so great in the matter of koumiss; yet I have substituted honey for cane sugar, and principally for the following reasons: honey is more wholesome, more nourishing, more digestible, and more physiological food than cane sugar. It produces a koumiss having a finer sedimentary deposit, increases the beauty and delicacy of flavor, and delays or prevents its becoming caseous.

Koumissed peptones are, equally with koumiss, the vehicles for the administration of such of the most important therapeutic agencies as are of use in particularly wasting diseases. But such medicinal agents are not added where the beauty and delicacy of flavor of either the koumiss or koumissed peptones are in any appreciable degree interfered with.

THE STRENGTH OF TEA.—Considering its universal use as a beverage, it is surprising how little is known about it, or any standard tests of its quality. The quality of tea generally spoken of under the term "strength" is very vaguely defined, and as yet no relation has been ascertained between it and the amount of any particular constituent of tea. Considering the physiological properties of theine, the characteristic and essential alkaloid of tea, it might be supposed that the "strength" of tea depended to a considerable extent upon the amount of this substance present in it, and this view assumes some probability in consequence of the variable statements that have been made as to the quantity of theine ob-

tained from various kinds of tea, which estimates range from one to two to nearly six per cent. A recent investigation undertaken by Paul and Cownley, the results of which have been published in the *Pharmaceutical Journal*, has shown, however, that the variable yields previously obtained were probably due to imperfect methods of analysis, and that theine is a much more constant constituent of different kinds of tea than had been supposed. It was, in fact, found that in upward of twenty samples of Indian and Ceylon teas, commercially valued by the brokers at prices ranging from 7d. to 3s. per pound, the proportion of theine varied only from 3.22 per cent. in the lowest to 4.66 per cent. in the highest. In the case of two samples of tea selected by experienced judges as representing extreme differences in "strength," the proportion of theine was practically the same in both. It is evident, therefore, that neither the market value nor "strength" of a tea is dependent upon the quantity of theine it contains. Paul and Cownley consider that it is much more probable that the "strength" is chiefly determined by the amount and condition of the astringent constituent comparable to a tannin, but before pronouncing definitely upon this point, it will be necessary to acquire a better knowledge of the chemical nature of that constituent. The results of this investigation are of additional interest to the medical practitioner, because they furnish him with data concerning the approximate quantity of theine introduced into the system by habitual tea-drinkers. An ordinary modern teaspoon would contain about sixty grains of tea, and, according to the housewife's well-known rule, would be the quantity allotted to each person sharing in the tea-brewing. If the tea contained the average quantity of theine—say four per cent.—it would represent two and a half grains of theine. According to experiments made by Paul and Cownley, infusion in boiling water during five minutes, which does not exceed the time tea is usually allowed to "stand," is sufficient to remove at least half of the theine from the leaves, so that in a case such as that supposed each tea-drinker would ingest at least a grain of theine, or equal to a medicinal dose, as indicated by the *Pharmacopæia*.—*British Medical Journal*, December 3, 1887.

THE TREATMENT OF BLEPHARITIS FOLLOWING MEASLES.—TROUSSEAU, in the *Journal de Médecine*, of November 27, 1887, employs compresses or fomentations of boric acid solution in the acute stage of blepharitis following measles. At night he orders the borders of the lids anointed with—

Vaselin.							aa gr. 75
Lanolin.	:	:	:	:	:		
Zinc. oxid.	:	:	:	:	:		gr. 7½
Or,							
Hydrarg. ox. rubr.							gr. *

when the inflammation has become chronic.

ANTIFUNGIN.—Under this title OPPERMANN has used borate of magnesia as an antiseptic, in a 15 per cent. solution, of which five to twenty drops internally may be given in typhoid fever and diphtheria. The powder is soluble in four parts of boiling water, and precipitates in cold water. It is decomposed by light.—*Monatshefte für Praktische Dermatologie*, No. 22, 1887.

THE TREATMENT OF LEPROSY.—UNNA is quoted by *The Medical Chronicle* for December, 1887, as advising the following treatment:

Chrysarobin	5 parts.
Ichthyl	5 parts.
Salicylic acid	2 parts.
Vaseline	100 parts.

which he applies to the nodules. On the face, neck, and hands, pyrogallic acid is substituted for the chrysarobin, in order to avoid the irritating effect of that drug, and avoid any danger of conjunctivitis. The nodules disappear or drop out, and the general condition improves.

SALOL IN TABLETS.—LOMBARD has found the following a convenient prescription:

R.—Gum. tragacanth.	gr. 15.
Gum. arabic.	gr. 45.
Aque	32½.
Salol	36¼.
Sacchar.	315.
Essen. citron.	gtt. 5.

In 100 tablets, each containing between three and four grains of salol.—*Revue de Thérapeutique*, December 1, 1887.

PYRIDINE IN THE TREATMENT OF ASTHMA.—GERMAIN SÉE employs a teaspoonful of pyridine, put in a hot vessel or plate, by inhalation for twenty minutes, three times daily. He also prescribes iodide of potassium, with syrup of tolu and opium.—*Revue de Thérapeutique*, December 1, 1887.

ANTIPYRIN AS AN ANODYNE.—JENNINGS, in the *Lancet* of December 10, 1887, reports his experience with antipyrin as an anodyne as follows:

If antipyrin is not an unfailing specific, I have certainly seen it allay pain as speedily and more radically than a hypodermatic injection of morphia. Whether any evil results are likely to follow its prolonged use remains, of course, to be seen. There is a good deal of talk at present about the possibility of benzine poisoning resulting from the admixture of this substance with the drug, owing to imperfect preparation, but I must confess that every solution I have used hypodermatically has smelt of benzine, and until the end of September, when I purchased an inodorous sample in London, I was under the impression that this was always the case. Like others I have frequently seen giddiness, vertigo, and nausea follow the administration of antipyrin, and ecchymoses and induration at the seat of injection. In one instance where I had associated it with cocaine, according to a formula much used in Paris, the patient felt prostrate and miserable for four or five days. This had never occurred with antipyrin alone.

THE TREATMENT OF HEPATIC COLIC BY OLIVE OIL.—Olive oil in large quantity is vaunted as a certain cure for hepatic colic due to gall-stones. DR. JUST TOUATRE, of New Orleans, has written an interesting account of self-cure of biliary colic and gall-stones, in the second number of a bi-monthly Roumanian journal (*Archives Roumaines de Médecine et de Chirurgie*),

whose editor is M. Georges Assaky. The method of procedure was as follows: At seven in the evening a blue pill of the weight of $2\frac{1}{4}$ grains was taken, and this was followed twelve hours later by the taking in one draught of twelve tablespoonfuls of olive oil; a quarter of an hour later a similar dose of olive oil was taken, and then the patient addressed himself to sleep on his right side. At nine o'clock the blue pill acted, producing a copious biliary evacuation, but no gallstones. Three o'clock in the afternoon saw another bilious stool without stones, but from seven in the evening till midnight six stools were passed; the first two contained seventeen calculi of the size of a large pea of conical shape, grayish-yellow aspect, and soft consistency. Altogether sixty stones were evacuated, and six of these had the volume of an olive, and were of a black color. The passage of these calculi by the cystic and biliary canals was for the most part unattended with pain, a few spasms being felt probably at the time of the movement of the large calculi. An inexpressible relief was obtained from the pains over the liver and shoulder, which had previously caused much distress; the liver also diminished in size. For three months Dr. Touatre enjoyed perfect health, when the trouble commenced again; the olive oil was repeated in similar fashion, and with the result that eighteen more calculi were discharged by the bowel. Since then he has enjoyed excellent health. He admits that some courage is required to swallow the large doses of olive oil.—*Lancet*, December 10, 1887.

PASTEUR'S METHOD SIMPLIFIED.—DR. HÖGYES, of Buda-Pesth, has published in the *Orvosi Hetilap* an account of some researches he has made on the protection of dogs from rabies by a somewhat simpler method than that employed by Pasteur. He, too, makes use of the spinal cord of an infected rabbit, but instead of drying it to a gradually increasing extent to obtain various degrees of activity, he merely rubs it up with water containing chloride of sodium so as to make solutions varying in strength from 1-10th to 1-5000th. The dog to be protected is injected successively with these, beginning with the weakest. The results appeared to be quite satisfactory, and a complete immunity from rabies to be secured by six of these injections.—*Lancet*, December 10, 1887.

A SIMPLE METHOD OF DISLODGING IMPACTED GALL-STONES.—LAWSON TAIT describes the following simple procedure, which he has used in one case successfully. It consists in passing a fine needle through the wall of the intestine from below (that is, from the empty part of the intestine) into the gall-stone. The stone is thus easily and immediately split up into fragments and passes readily along the intestine, and the grave complication of opening the intestine is rendered unnecessary. The operation is, in fact, little more than an exploratory incision.—*Lancet*, December 10, 1887.

LEMON JUICE IN EPISTAXIS.—GENUIL has had excellent results in checking epistaxis by first syringing out the nares with cold water and then following this by injecting the nares with lemon juice; the coagulation of the blood followed promptly.—*Bulletin Général de Thérapeutique*, November 30, 1887.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, DECEMBER 31, 1887.

RELATION OF DISEASES OF THE REPRODUCTIVE
ORGANS IN WOMEN TO INSANITY.

It is hardly ten years since it was deemed important for the proper care of insane women in hospitals for the insane, that physicians who were women should have a place on the medical staff. No question as to their right to become applicants for such positions, or as to their legal qualifications, had arisen, but it was urged as an important consideration that from their inherent constitution they might exhibit more sympathy in the care of their afflicted sisters than might be expected from the so-called sterner sex; and that a woman could not give that assent to a personal examination that she may give in a sound mental state; and if she felt disposed to resist an examination, it was highly improper for any but a female physician to make it, if ever necessary, under these circumstances.

The departure was urged by some from an honest assumption and belief that a large proportion of insanity among women was due to those diseases and disorders that are peculiar to their sex. Non-professional persons, politicians, and others actuated by purely sentimental reasons, who profess to believe in equal rights, in the elevation of women to a higher plane, and that seeming disabilities should be removed, so that they might not be debarred from having a fair chance, also united in invoking legislation to make the appointment of female physicians in the asylums compulsory. In the absence of any legislation, such appointments were always considered within the scope of the appointing power; and, since the agitation of the question, female physicians have been appointed in several asylums without legislative requirement, for reasons considered good and sufficient. In the State of

Pennsylvania, the women's wards of two hospitals have been in the sole charge of female physicians, and wherever they have been connected with an asylum service, no obstacle has been placed in the way of the study of the relation of diseases of women to insanity, so that we ought now to be in a fair way of arriving at some established results. From published reports and expressions of opinion thus far, and the absence of any expression on the subject where we might have looked for it, we cannot conclude that these diseases form such an important factor in the production of insanity as has been alleged. In a total population, where women form nearly an equal part, we might infer that if diseases of the sexual organs of women were a prolific cause of insanity, the number of insane women would greatly outnumber the insane males, whereas the reverse is true. As a matter of fact, if we trust to official reports, so-called women's diseases figure among the least of the agencies in the production of insanity. What is a frequent concomitant coincidence is too frequently mistaken for a cause. How far do these reports sustain this allegation?

According to the Report of the Committee of Lunacy of Pennsylvania for 1885, an even one thousand women were admitted to the various asylums of the State. In the published table of causes three of the thousand are reported to have become insane from uterine disorder and disease. In the Report for 1886, of 733 women admitted, the number reported is the same. Dr. Margaret A. Cleaves, Physician, Female Department, Harrisburg Hospital for Insane, in the 33d Annual Report, says: "My own actual experience convinces me that at least thirty per cent. of insane women are the subjects of lesions of the reproductive organs" "The whole subject is one of much interest to me, but I cannot yet clearly discern the full extent of the influence that diseases of the reproductive organs have upon the insanity of women." In reference to treatment: "My experience does not justify me in the belief that the percentage of recoveries will be increased by such special treatment as I had hoped." Dr. Alice May Farnham,¹ with an idea of arriving at some conclusion in regard to the relative value of uterine disease as an etiological factor in the production of insanity, conceived the idea of comparing the result of the pelvic examination of a certain number of patients in the Willard Asylum with the same number of mentally healthy women of the same social class. "The result was somewhat surprising. Out of thirty mentally healthy women but four were found in whom the pelvic organs were in a condition of health. Out of the same number of insane

¹ Uterine Disease in the Production of Insanity. Alienist and Neurologist, Oct. 1887.

women, taken *seriatim* from the patients of two wards, six were found in whom the pelvic organs were in a condition of health. Were uterine disease really so powerful an agent in the production of insanity it would be a matter for wonder that, with the alarming prevalence of such disorders, so few women exhibit profound nervous disturbances."

The testimony of Dr. Skene, and others, in the same direction, could be adduced, but enough is cited to show that there is much professional as well as non-professional sentiment among physicians and the community at large on this subject that has no other foundation than conjecture. Disorders of the reproductive organs, like those of other organs with intimate relations to the nervous system, may have an influence in lowering the natural standard of health, but as an active, direct agent in the production of insanity they are greatly overestimated.

THE DANGER OF OCCUPYING NEWLY BUILT HOUSES.

THE town of Bâsle, in Switzerland, has adopted a regulation which prevents newly built houses from being inhabited until four months after their completion. It would be well if such a restriction were extended to other places. The reasons for the practice are obvious. The chief objection to the early use of newly built houses lies in the great danger to health of wet walls. The quantity of water used in constructing an ordinary house of brick and mortar would surprise any one who has not investigated the subject. According to Pettenkofer's estimate, the walls of a building in which 100,000 bricks are used, such as a modern brick dwelling of medium size, will require about 10,000 gallons of water in their construction, which must be gotten rid of before the house becomes habitable. This large quantity of water is held in the pores and spaces of the bricks and mortar, until dispelled in the form of vapor, which is a gradual process, unless its removal is hastened by artificial means.

Damp or wet walls are injurious to health by impeding ventilation and the diffusion of gases, through the closing of their pores by water. Spontaneous ventilation through the walls of a building plays no inconsiderable part in the change of air of our dwellings. Märker and Schultze found that the spontaneous ventilation through one square yard of free brick wall, at 9.5° Fahr. difference of temperature between the outside and inside, amounted to about eight cubic feet per hour.

Another way in which wet walls are injurious is by disturbing the heat-economy of our bodies. Damp walls absorb heat by their evaporation, and act like rooms insufficiently warmed; they are much better conductors of heat than dry walls, and add considerably to our heat-losses by a one-sided and increased radiation. It is not surprising that diseases com-

monly attributed to cold, such as rheumatism, catarrhal affections, and Bright's disease, are of frequent occurrence in damp dwellings.

In order to render new houses habitable, the excessive amount of moisture stored in the pores of the walls must first be removed. There is only one way in which this can be accomplished, and that is by spontaneous evaporation into and by the air. This evaporation depends on the temperature, humidity, and the velocity of the air. Under ordinary circumstances it is a gradual process, but a condition of dryness may be more quickly brought about by the heating of all the stoves, furnaces, and flues, and the continual ventilation of all the rooms of the house. In the absence of knowledge of proper measures having been taken to insure dryness, it is illusory to trust to appearances. The walls may have lost just enough of the building water to allow the air to occupy their superficial pores. They appear dry, while in fact they are not. When such a house is occupied, and the fires lighted, damp spots quickly appear upon the walls. The heat from the fire evaporates water from the surfaces in its vicinity, and this watery vapor, together with that given off from the bodies of the occupants and that produced by the manipulations of the household, such as cooking, washing, etc., is precipitated as dew upon the walls at a distance from the fire, for the reason that their pores are already surcharged with moisture, and cannot pass the water on through them to the outer air. A dry, porous wall, on the contrary, is capable of absorbing and transmitting a good deal of moisture without any evident signs of dampness.

A statement of these plain facts seems to be demanded, for it is a matter of everyday observation that people recklessly occupy houses almost before completion, without regard to their dryness or other conditions of fitness for habitation. The present time is one of great activity in building operations. In Philadelphia alone more than five thousand buildings were constructed in 1885, a larger number in 1886, and this number will be far exceeded the present year. The same activity prevails elsewhere. The eagerness with which new houses are sought after shows that the supply is not equal to the demand, and, in their haste to secure possession, people are apt to overlook features in construction and conditions of the buildings which may be most prejudicial to health.

DR. R. A. F. PENROSE, after an incumbency of a quarter of a century, has tendered his resignation of the Professorship of Obstetrics and the Diseases of Women and Children in the University of Pennsylvania, to take effect at the close of the current session.

THE physicians of the two easternmost counties on Long Island, N. Y., have agreed to consolidate in one body, to be named the Queens and Suffolk County Medical Society. Dr. W. P. Overton, of Cold Spring, is President, and Dr. W. Thorne, of Farmingdale, is Secretary. There will be a meeting in March, 1888, at Farmingdale, and scarlet fever has been appointed as the scientific subject for discussion.

THE preparation called "Rough on Rats" is nearly pure arsenious acid, and yet in many localities it is sold without restriction to every purchaser. No record of the sales of this form of poison is kept, and when it is used for criminal ends it is most difficult to trace it to its source. Suicide by this substance has occurred quite frequently in Brooklyn, of late, and Coroner Rooney has declared war upon its free and unregistered sale. It would be well if other coroners would unite with him in finding means to suppress the sale of this deadly nostrum.

THE British Medical Association, at the instance of MR. ERNEST HART, has started a medical library and reading room at the office of the Association, in London, for the use and convenience of the members generally.

THE King's County Medical Society, at Brooklyn, N. Y., having become settled in their new home, recently purchased, now propose to float a monthly medical journal, the first issue of which will appear about the first of January next. It will probably be entitled *The Brooklyn Medical Journal*. It is, in some sense, the lineal descendant of the *Proceedings* of the society above named—a publication that subsisted a few years ago, after an interesting existence of nearly a decade. Some of the old editorial talent will be enlisted for the new publication. Dr. Joseph H. Raymond will be editor-in-chief, and will be assisted by Drs. Hutchins, Hunt, Butler, and Bailey. At the outset, each issue will contain not less than one hundred pages, which will be open to the transactions of various local societies.

AT the January meeting of the King's County Medical Association, Brooklyn, to be held on the 3d proximo, the subject for discussion will be "Fever," to be based upon Prof. Austin Flint's Address upon that subject, at the recent International Congress; papers by Drs. W. McCollum and T. M. Rochester, will review the therapeutic and physiological sides of the subject. Dr. Flint has signified his acceptance of an invitation to attend and will be invited to participate in the discussion.

DR. ALONZO B. PALMER, Professor of the Practice of Medicine in, and Dean of the Medical Faculty of the University of Michigan, died at his home in

Ann Arbor, last week, aged seventy-two. He was the author of a text-book on the *Science and Practice of Medicine*, which was published about five years ago, and of numerous contributions to periodical literature, and from 1852 to 1859 he was one of the editors of the *Peninsular Journal of Medicine*.

THE English weeklies, just received, announce the death, last week, aged eighty-six, of SIR GEORGE BURROWS, formerly Physician to the St. Bartholomew's Hospital, and Physician in Ordinary to the Queen.

REVIEWS.

A MANUAL OF ORGANIC MATERIA MEDICA. By JOHN M. MAISCH, Phar. D. Philadelphia: Lea Brothers & Co., 1887.

THIS little hand-book of Professor Maisch having reached its third edition, needs from us no words of recommendation, and our duty is the pleasant one of announcing the advent of the book revised up to date, and containing descriptions of those remedies which, as the author states it, are new, or else are old ones revived within the last few years.

The boon to the student who is forced to learn a large amount of that dry subject, *materia medica*, which this book affords, can only be appreciated by those for whom the book was chiefly written, namely, students of pharmacy; and while condensation of knowledge in a convenient form for "cramming" is, as rule, a faulty method of book-writing, in this instance it is not only justifiable but necessary, since a vast mass of unnecessary descriptive statements is weeded out.

Altogether, the third edition surpasses in its advantages and completeness its predecessors, and will doubtless reward both the writer for his thoroughness as to important details, and the publishers for their care in the printing and binding of the book.

CORRESPONDENCE.

BERLIN.

The Friedrichshain Hospital—Extirpation of Larynx—The Bacillus of Cancer.

To the Editor of THE MEDICAL NEWS,

SIR: The physician who comes to Berlin thinking that the hospitals are open to him for bedside work and personal examination of the sick, is destined to be disappointed. There are hundreds of courses (in general medicine), where one can waste any amount of time, while a German student excludes every organ in the body before he makes a diagnosis of arterial insufficiency. But, bedside work, as a rule, is not to be had here. "The Berliner Krankenhaus, Friedrichshain," is the most extensive hospital here. It is built on the pavilion system, with no connection whatever between the buildings, of which there are fourteen; six medical and seven surgical, with total of about seven hundred beds. The eleven resident physicians receive their appointment largely on account of their record in the University and elsewhere; and their term of service is as long or short as they choose to make it.

The medical wards are under the direction of Fürbringer, formerly professor extraordinary at Jena. The distinguished position he occupies here needs no words from me—personally he is a charming man, and beloved by all about him. Prof. Fürbringer's latest publication is a monograph "Ueber die Desinfection der Hände des Arztes," a timely contribution to an important subject; it would well bear translation for American readers.

The surgical wards are under Hahn, who is considered by many to be a greater surgeon than Bergmann. And, indeed, the purpose of this letter is to describe his (Hahn's) last successful operation for extirpation of the larynx. This operation is at present much discussed here in connection with the case of the Crown Prince, about which one hears so much gossip and so little that is reliable. And the German physicians and surgeons, though differing, are at heart one in their sweeping condemnation of Morell Mackenzie. It is currently reported here that from the time he was called to the case, up to a few weeks ago, no German was allowed to examine the Prince's throat; and that this was not even permitted to Langraf, who accompanied his Highness to England, and remained with him until September 15th. Much comment has also arisen from Mackenzie calling Krause in consultation, as it is claimed that he does not represent Berlin medicine.

Again, Virchow now declares that he never said that the growth was *not* malignant; only that the *piece* sent him was not. However this may be, the growth is now said to be cancer, and medical Germany rejoices in the triumph of German diagnosis, and declares that the radical operation should have been performed at first, as was advised by Bergmann, Gerhardt, Tobold, etc. But then comes the question, "How far is this operation justifiable? Does it tend to prolong life?" I have before me Hahn's last two papers on the subject:

"Extirpation of the Larynx," and "The Results of Extirpation of the Larynx for Carcinoma," also the record of his 18 operations. The detailed record of those of Bergmann I could not get.

These figures are valuable, for they enable me to give a complete history of this operation till to-day. They are, moreover, entirely reliable; having been kindly given me by the distinguished professor himself.

There have been 103 partial and total laryngectomies done to date, with 21 recoveries. These figures, however, must not be taken as absolute; for in many we have no record beyond that of their supposed recovery at the time the case was reported.

We can obtain a fairer idea of the success of the operation in question by an examination of Hahn's record.

Professor Hahn has classified his operations as follows:

	No.	No. living.
I. Total extirpation of larynx, on account of carcinoma and sarcoma	10	1
on account of stricture	2	2
II. Partial extirpation for cancer for stricture	4	3
	1	1
III. Partial tracheal extirpation on account of cancer	1	
Total	18	7

Here, then, we have a total of 7 recoveries in 18 operations. In the partial operations the record is very good; for, as will be seen, we have here a record of 4 recoveries out of 5 operations. I had the pleasure of seeing the only surviving case of *total* extirpation. The patient is now seventy-five years of age, and was operated upon seven years ago. A very beautiful result; the old man having quite a respectable voice, and one can understand every word he says. Professor Hahn does not consider the operation a dangerous one, provided it is performed *early*, and the *cancer* shows no tendency to a *soft* variety.

In the Crown Prince's case, as is known, it was proposed to do a partial extirpation—and if we can judge anything by the above figures—his chance of surviving was very great. The distress of the German people at his critical condition is very deep, for the Crown Prince is greatly beloved; and I am told that Bergmann had received three letters, from different men, begging that he should take their healthy larynx, if such a thing was possible, and transfer it to the Prince—for they would gladly die to save his life.

Two partial laryngectomies have been done here in the last month. One by Bergmann, upon a healthy man of about forty years, whose larynx had been involved for two months only, and who died a few days after the operation. The second was by Hahn, upon whose invitation I was present at the operation.

The patient was a fine looking fellow of thirty-six. The cancerous growth, of one and a half years standing, had destroyed the left vocal cord. He was operated upon exactly one month ago. He did well from the first, and is now rapidly recovering. I had the pleasure of seeing him a few days since, sitting up and able to swallow liquid food.

The operation was rapidly performed under perfect antisepsis—the only thing calling for special mention, is the use of a large tracheotomy tube,¹ wrapped with iodoform gauze; this is of a size which completely fills the lumen of the trachea, and absolutely prevents the entrance of blood into the lungs, besides enabling chloroform to be administered.

The other subject of general discussion here is, or was the announcement of the discovery of the *bacillus of cancer* by a young man, Scheurlen, an assistant of Leyden.

Scheurlen brought forward the results of his investigation on Monday last at the *Verein für Innere Medicin*. Of course, all medical Berlin was present, and the paper was listened to with great interest, which eventually gave place to greater disappointment. Scheurlen is only twenty-five, and graduated last spring from the University. The tremendous importance of this subject—a cancer bacillus—justifies a *résumé* of the latter's paper, the text of which comes to me this morning in the *Berliner klinische Wochenschrift*. Briefly: He took twenty carcinomas from various sources, and as a vehicle for pure cultures he first used the serum from a pleurisy. This was coagulated in sterilized tubes after Koch's method, and vaccinated with the "cancer milk" from the original cancers—and in three days occurred different changes indicative of the development of bacilli.

From each of ten tumors twenty vaccinations were

¹ An inferior tracheotomy was done.

made, and seven were successful. Microscopic examination of these showed a peculiar bacillus and spores, which, under sufficient power, showed movement. The bacilli colored with Gram's method, but only the ends. The spores colored with nitric acid and water only. He claims that no other bacilli and spores have the same form or movement, or color in the same way. The bacilli were found eight times out of ten when colored after Gram's method.

When cultivated from the serum in agar-agar, the bacilli appear in ten hours, the spores after ten days. A first coloring of these spores with fuchsin aniline, and afterward with violet or blue, makes a very striking picture.

In gelatine, the growth of the bacillus is very slow.

Direct cultivation from the tumors in agar-agar or gelatine, gave six results from seventy cultures. Two potatoes gave infusion of peptones. From cabbage, after twelve to twenty-four hours, he got the characteristic microbes.

The mammary glands of six dogs were injected with cultures from potato, or agar-agar. In four days there were circumscribed hardness and swelling of the glands. The tumor was removed from two of the dogs, and microscopic examination showed considerable cell proliferation, with large granular epithelioid cells, among which moving bacilli spores could be seen. Finally, he claimed to have discovered the cause—*i. e.*, the bacillus of cancer.

On this claim the criticisms have been very severe. But it is only fair to await his further investigations.

F. DONALDSON, JR.

BERLIN, December 9, 1887.

NEWS ITEMS.

THE NEW YORK QUARANTINE.—The State Board of Health of New York has forwarded to the Governor of the State a lengthy report on the New York Quarantine Station, which concludes as follows:

"It is the unanimous opinion of those posted on such matters that it would be difficult to imagine a worse state of affairs than now exists at the Quarantine station. It is hard to realize in this age of civilization that the harbor of the city of New York should be so inadequately provided with facilities for the prevention and extinction of an epidemic. The State Board of Health does not consider it within its province to pronounce upon the actions of the Quarantine authorities."

REFUSAL OF A PHYSICIAN TO TREAT WEALTHY PATIENTS IN A CHARITY HOSPITAL.—DR. NORMAN BRIDGE, one of the attending physicians to Cook Co. Hospital, has been recently made the object of severe criticism by the *Chicago Tribune*, for refusing to treat as charity patients, persons able to pay, but admitted to the hospital under political favoritism.

LOCALIZATION OF AN IMBEDDED NEEDLE BY A MAGNET.—The *Chronique Industrielle* of November 6, 1887, is quoted by the *Sanitary Engineer* as relating the following incident:

The daughter of a Mr. Preece accidentally stuck a small steel needle into her hand which broke into

three parts. Two of these parts were easily found and extracted, but the third could not be located. The Hughes' induction balance plainly indicated that the piece of needle was there, but not its position. Mr. Preece highly magnetized a fine needle and suspended it by a single fibre of silk. The deviations of the suspended needle always plainly indicated one particular spot when the sore hand approached it. After a number of trials with the same result, this point was marked, an incision made, and the third piece of the broken needle four millimetres long was found and easily extracted.

HYPNOTISM AND THE FRENCH LAWS.—The *Lancet* reports that a schoolmaster has recently been charged, at the assizes of the Nièvre, with indecent assaults upon children under his care. At the previous sessions he had admitted the offence, but declared he had acted under the influence of an irresistible impulse. The court had in consequence postponed their decision pending the medical examination of the accused. The medical witnesses have concluded that the case is one of hysteria, and that hypnotic sensibility being developed to a high degree, the subject is only responsible to a limited extent; and an intelligent jury pronounced a verdict of acquittal. It would be interesting to know whether these enlightened experts would have come to the same conclusion had the assaults in question been made upon their own children, and what would then have been their views on hypnotism.

LEAD POISONING FROM FLOUR.—The *British Medical Journal* reports that a very remarkable epidemic of lead poisoning has recently been investigated in three communes in the north of France. Upward of one hundred persons were suddenly attacked with violent symptoms, among which severe colic predominated. So serious did the condition of some of the sufferers become, that medical aid was obtained, and the presence in several patients of a characteristic blue line on the gums gave rise to the suspicion of lead poisoning. The water supply was derived from so many different sources that it could not be incriminated, and suspicion ultimately fell on the flour.

It was ascertained on inquiry that the affected persons had all obtained their flour from the same mill, but those who had partaken of rye bread were most severely attacked. The mill was gone over, and after a very long and painstaking examination, attention was directed to the tin buckets of the elevator which served to transport the rye flour from the grindstones. Several of these buckets had a dull, leaden appearance, and were found to have been "tinned" with lead. As doubts were entertained whether the quantity of lead from this source was sufficient to give rise to such severe symptoms, they were carefully weighed, and were found to have lost upward of five ounces of their weight. The wheaten flour, which passed through another elevator, was free from lead, and this was evidently due to none of these "leaded" buckets having been employed in its construction. The accuracy of the discovery was confirmed by the observation that those who ate rye bread exclusively were most severely attacked, while the others, who mixed the two flours, escaped with comparatively slight symptoms.

A REVOLT OF VENEREAL PATIENTS IN AN ITALIAN HOSPITAL.—At the hospital of Santa Maria, at Naples, where a number of women suffering from specific diseases are under treatment, the authorities had forbidden the friends and paramours of the patients from calling upon them. This was followed by an open revolt for eight hours, during which the furniture of the hospital was demolished, windows and doors broken, and twenty-two of the Sisters of Charity in attendance were injured more or less severely. The patients attacked the police, and wounded several. Order was finally restored, and twenty-eight arrests were made. A reform in hospital management is evidently needed.

A PRACTICAL TEST OF A CLIMATE FOR A PHthisical PATIENT.—DR. OTIS, of Boston, concludes in an article in the *Boston Medical and Surgical Journal* of December 15, 1887, that in whatever climate one finds his lung trouble improving steadily, there he should remain, not only until all signs of mischief disappear, but, in many cases at least, as long as he lives. I feel convinced that this is the safest and wisest plan, and I think that physicians of experience are gradually growing to this opinion. This is especially true of the Colorado climate, which is such a radical change from the one the patient is likely to come from. I believe the slow improvement, or lack of any improvement, in many cases is due, partly, at least, to the worry over the enforced exile, and eager watching for the time when they think they will be able to return to their homes. It is often noticeable how quickly and permanently those improve and recover who take up their residence in Colorado, and settle down to permanent living there, with their friends and family about them. The contrary is also observed with those who make it a mere health resort, and are separated from their family and friends; as, for instance, a wife from her husband, or a daughter from the rest of her family.

SEWER-GAS POISONING IN A YOUNG WOMEN'S SCHOOL.—The *Sanitary News* of Dec. 10, 1887, reports a recent instance where a large and well-built and expensively built house, in a particularly exclusive and perfectly well-cared for thoroughfare of an eastern city, was taken as the home of a young ladies' school. Before its occupancy plumbers were set to work to tear out and renew wherever tearing-out and renewing were necessary to constitute perfect safety from sewer emanations. Even the stationary wash-bowls were removed from all the rooms, and bowls with pitchers substituted as a special precaution. At last the plumber—one of the largest, and wealthiest, and most reputable in the city—who had not been limited in any necessary expense, pronounced the plumbing-work in the house as good as it could be. The school moved in and for a considerable time all went well. After a while, one of the young ladies, and then another, then a third, was taken suddenly and mysteriously ill with violent headache, fever, vomitings, and other unmistakable typhoid symptoms. The school was at once closed, and a New York sanitary engineer of much more than local reputation, was commissioned to discover the cause. He found it in sewer-gas, escaping here and there about the building through leaky joints, ill-made connections, and

criminal botch work of many descriptions, which, by the aid of plaster-of-Paris, or behind wood-work, or under floors, had been covered up and left to breed disease by the conscienceless plumbers. It is significant to note, notwithstanding all the defects found by the engineer on detail examination, that the well-known and so-called perfectly reliable peppermint test, which was first made by him, revealed no leaks whatever, except a scarcely perceptible odor in the bath-room.

THE CONTAGION OF DIPHTHERIA.—The *Sanitary News* of December 10, 1887, reports cases of diphtheria in Michigan, in which the health officer has traced the contagion which caused a severe attack of diphtheria in St. Joseph's Orphan Asylum, and has found that a mother and child had diphtheria in Sault Ste. Marie last spring. The mother died. The woollen dress which the child had worn was packed in her trunk and brought to Marquette. After being unpacked a short time ago diphtheria soon appeared.

DR. ARTHUR D. BEVAN, a member of the Faculty of the Medical Department of Willamette University, Portland, Oregon, has been appointed to the Chair of Anatomy in Rush Medical College, Chicago.

WHAT IS A DRUG?—From the *Boston Medical and Surgical Journal* of December 8, 1887, we learn that a case came up in the Superior Criminal Court, December 6th, before Judge Bacon, on the interpretation of the Sunday law passed at the last session of the Legislature, as to the meaning of the word "drug," and what it includes. An apothecary was tried for a violation of the law. It appeared in the evidence that the violation consisted in selling a cigar. Counsel for the defendant claimed that a cigar was a drug, and came within the section of the law relating to drugs and medicines. In support of his view of the case, he cited various authorities, and quoted freely from Worcester and Webster as to the definition of tobacco. In his instructions to the jury, the judge said that if they found that tobacco was a drug or a medicine, then they must acquit; but if they found that it was not a drug, then the defendant would be guilty. The jury, after being out a short time, returned a verdict of not guilty.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM DECEMBER 20 TO DECEMBER 24, 1887.

BIART, VICTOR, *Captain and Assistant Surgeon.*—Relieved from further duty in the Department of Dakota.—*S. O. 293, A. G. O.*, December 17, 1887.

SWIFT, EUGENE L., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Spokane, Washington Territory.—*S. O. 293, A. G. O.*, December 17, 1887.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the **News** should be addressed to No. 1004 Walnut Street, Philadelphia.

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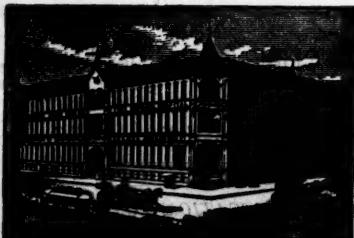
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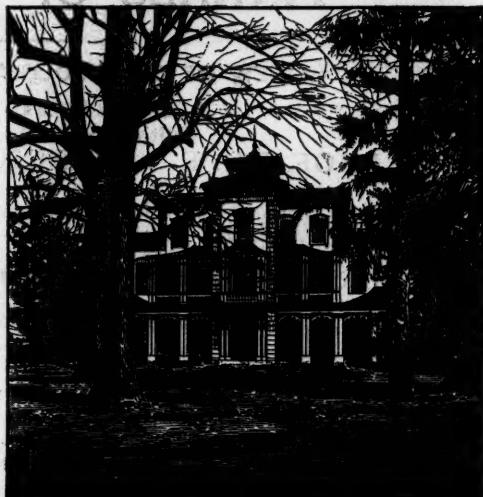


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